WHAT IS CLAIMED IS:

1. A spectrometer comprising:

a first collection device that includes an adjustable-optical path and configured to collect a first portion of a wavefront;

a second collection device configured to collect a second portion of the wavefront;

combiner optics configured to interfere the first and second portions of the wavefront at an image plane of the first and second collector devices to form interference patterns at the image plane; and

a Fourier transformation module configured to derive spectral information from the interference patterns.

2. The spectrometer of claim 1, wherein the Fourier transformation module is configured to Fourier transform the interference patterns to derive the spectral information.

3. The spectrometer of claim 1, wherein, to derive the spectral information, the Fourier transform module is configured to Fourier transform the interference patterns of the wavefront with the adjustable-optical path set at a variety of path lengths.

4. The spectrometer of claim 1, wherein the Fourier transformation module is configured to generate a spectrogram of the wavefront.

5. The spectrometer of claim 1, wherein the Fourier transformation module includes an image-capture array disposed at the image plane configured to capture images of the interference pattern.

6. The spectrometer of claim 5, wherein the image-capture array includes a charge-coupled device (CCD) array or a complimentary metal oxide (CMOS) array.

7. The spectrometer of claim 1, wherein the Fourier transformation module includes software code configured to perform the Fourier transformation.

8. The spectrometer of claim 1, wherein the Fourier transformation module includes a electronic hardware configured to perform the Fourier transformation.

9. The spectrometer of claim 1, wherein the first collection device is a first telescope and the second collection device is a second telescope.

10. The spectrometer of claim 1, wherein the spectrometer is configured to be deployed in space.

11. The spectrometer of claim 1, wherein the a first collection device includes an optical-path-delay mechanism configured to vary the adjustable-optical path.

12. The spectrometer of claim 1, wherein the second collection device includes an adjustable-optical path.

13. The spectrometer of claim 12, wherein the second collection device includes an optical-path-delay mechanism configured to vary a path length of the adjustable-optical path of the second collection device.

14. A spectrometer comprising:

a plurality of sub-aperture telescopes forming an extended aperture telescope, wherein each sub-aperture telescope includes an adjustable-optical path and is configured to collect a select portion of a wavefront;

combiner optics configured to interfere the select portions of the wavefront at an image plane of the plurality of sub-aperture telescopes to form interference patterns at the image plane; and

a Fourier transformation module configured to derive spectral information from the interference patterns.

15. The spectrometer of claim 14, wherein, to derive the spectral information, the Fourier transform module is configured to Fourier transform the interference patterns with one or more of the adjustable-optical paths set at a variety of path lengths.

16 The system of claim 15, wherein the variety of path lengths represent a relative path-length difference between one or more of the adjustable-optical paths.

17. The spectrometer of claim 14, wherein the Fourier transformation module includes an image-capture array disposed at the image plane configured to capture images of the interference pattern.

18. The spectrometer of claim 17, wherein the Fourier transformation module is configured to Fourier transform intensity profiles generated by one or more pixel included in the image-capture array.

19. The spectrometer of claim 17, wherein the image-capture array includes a charge-coupled device (CCD) array or a complimentary metal oxide (CMOS) array.

20. A spectrometer comprising:

a Fizeau interferometer having plurality of optical collectors, wherein one or more of the optical collectors includes an adjustable-optical path, and wherein each optical collector is configured to collect a select portion of a wavefront; and

a Fourier transformation module configured to derive spectral information of the wavefront from interference patterns of the select portions of the wavefront.

21. The spectrometer of claim 20, wherein the Fizeau interferometer forms an extended aperture telescope.

22. The spectrometer of claim 20, wherein the spectrometer is configured to be deployed in space.

23. The spectrometer of claim 20, wherein, to derive the spectral information, the Fourier transform module is configured to Fourier transform the interference patterns of the wavefront with one or more of the adjustable-optical paths set at a variety of path lengths.

24. A method for deriving a spectral information from a wavefront, the method comprising:

collecting a plurality of select portions of a wavefront with a corresponding plurality of multi-aperture telescopes;

interfering the select portions of the wavefront at an image plane of the multi-aperture telescope to form interference patterns at the image plane; and

Fourier transforming the interference patterns to derive spectral information for the wavefront.

25. The method of claim 24 further comprising generating a spectrogram from the spectral information.

26. The method of claim 24, wherein interfering the select portions of the wavefront includes interfering the select portions of the wavefront with a combiner telescope.

27. The method of claim 24 further comprising collecting images of the interference pattern with an imaging array.

28. The method of claim 27, wherein Fourier transforming the interference patterns includes Fourier transforming interference patterns of the interference patterns collected by the imaging array.

29. The method of claim 24 further comprising locating the imaging array at an image plane of the multi-aperture telescope.

30. The method of claim 24 further comprising:

pistoning adjustable-optical paths of the sub-aperture telescopes at plurality of positions; wherein each of the interference patterns corresponds to a select piston position of the adjustable-optical paths.

31. The method of claim 30 further comprising:

Fourier transforming one or more intensity profiles generated by a one or more pixels, respectively, of an image-capture array.